



Goals of Today's Meeting:

- Overview of the Project
- Funding
- Schedule
- Progression of Alternative Development
- Preferred Alternative



Aerial Overview SB Ramps I-89 NB NB Ramps Silk Farm Rd NH 13 Significant queuing to the nose of both interstate off ramps has been observed Silk Farm Road and Iron Works Road are close to the ramp intersections and influence the operations. © 2020 Google Good



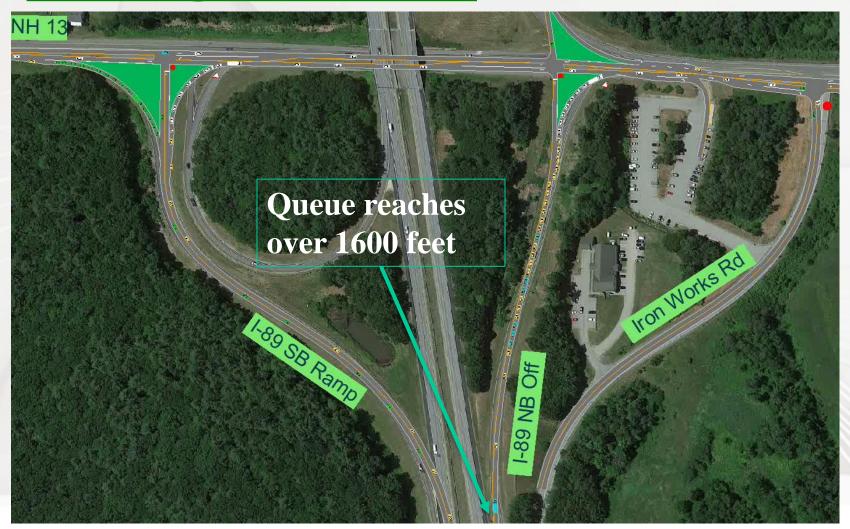
Funding

- TYP project programmed for Construction in 2023
- Budget \$2.1 Million

https://www.nh.gov/dot/org/projectdevelopment/planning/typ/documents/complete-typ-2021-2030-book-signed-by-gov-7-24-20.pdf



Existing Conditions





Bridge Constraint





Project Schedule

- Alternatives Development March 2019 March 2020
- Public Information Meeting Fall 2020
- Preliminary Design 2021
- Final Design Spring/Summer 2022
- Advertising Fall 2022
- Construction starting 2023



Concept Development Process

- NB Off Ramp Widening
- Signalized Existing Lanes
- Single Lane Roundabouts
- Expanded Signals
- Hybrid Roundabouts



NB Off Ramp Widening Concept





NB Off Ramp Widening

- Reduces queue lengths by a few hundred feet in the AM however, queues still extend onto I-89
- Not long enough to extend past the queue for the right turn movement in the AM and the left turn movement in the PM.
- Not viable as a stand-alone project; included in subsequent design alternatives
- Construction Estimate \$0.4 Million



NB Off Ramp Widening

PROS & CONS:

Pros

- Easy to Construct
- Works well with other concepts

Cons

- NB Off Ramp queueing continues to extend onto the Interstate
- No reduction to SB Off Ramp queueing





Signalized Existing Lanes Concept

Preferred Alternative



Department of Transportation

Signalized Existing Lanes

Preferred Alternative

- NB Off Ramps
 - 2022 Acceptable queueing and delay (LOS B-C)
 - 2032 Acceptable queueing and delay (LOS D-E)
 - 2034:
 - Moderate queueing (well short of Interstate)
 - Unacceptable delay (LOS F)
- Single thru lanes with LT turn lanes
- Construction Estimate \$1.7 Million
 - \$1.3M Signals and \$0.4M Ramp widening



Signalized Existing Lanes

PROS AND CONS:

Pros

- Easy to Construct
- Reduces NB and SB ramp queues to less than 400 feet in 2032
- No ROW Impacts
- Fits within budget
- Expandable for future growth

Cons

- Stopping more traffic on 6% grade
- 12-year design life (LOS F, assumes 1% traffic growth)
- Lefts out of Iron Works Road more difficult



Single Lane Roundabout Concept





Single Lane Roundabout Concept

- Acceptable LOS in 2022 (B-C)
- Acceptable LOS in 2032 (B-C)
- In 2033 the queue from the SB On/Off Ramp roundabout spills back in the NB On/Off Ramp roundabout on NH 13 EB.
 - Additional future improvements needed to avoid severe congestion.
- Construction Estimate \$2.7 Million
 - \$2.3M Roundabout and \$0.4M Ramp widening



Single Lane Roundabout Concept

Pros

 Reduces NB and SB ramp queues to less than 200 feet in 2032

Cons

- Yield required for traffic on 6% grade
- 10-year design life (assumes 1% traffic growth)
- Potential for gridlock in 2033
- Some ROW Impacts
- Beyond budget
- Difficult to adapt for future growth
- Lefts out of Iron Works Road more difficult



Expanded Signals Concept





Expanded Signals Concept

- 2022 Good queueing and delay (LOS A-B)
- 2038 Acceptable queueing and delay (LOS D-E)
- NB Offramp queue extends to Interstate with notable delay in 2039.
- Construction Estimate \$2.6 Million
 - \$2.2M Signals and \$0.4M Ramp widening



Expanded Signals Concept

PROS & CONS:

Pros

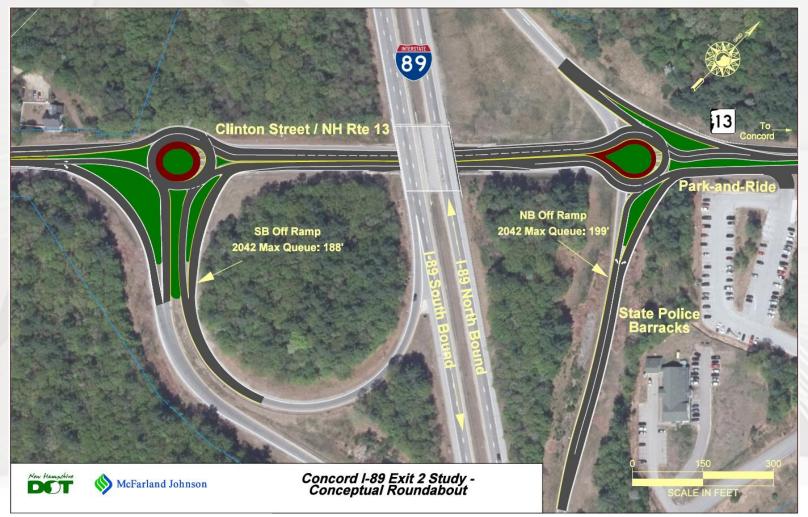
- Reduces NB and SB ramp queues
- No ROW Impacts
- I-89 Off Ramp queues under 300 feet for the NB PM and the SB AM & PM

Cons

- Stop required for traffic on 6% grade
- 16-year design life (assumes 1% traffic growth)
- Beyond budget
- Effectiveness reduced by bridge constraint
- Lefts out of Iron Works Road more difficult
- AM NB Off Ramp queue over 850 feet
- NB traffic spills back into SB Intersection in 2038
- Merging traffic at Irons Works Road



Hybrid Roundabouts Concept





Hybrid Roundabouts Concept

- 2022 Good queueing and delay (LOS A-A)
- 2042 Acceptable queueing and delay LOS (C-E)
- NH-13 and I-89 Offramp queues are reasonable in 2042
- Some ROW impacts
- Construction Estimate \$3.6 Million
 - \$3.2M Roundabout and \$0.4M Ramp widening



Hybrid Roundabouts Concept

PROS & CONS

Pros

- Reduces NB and SB ramp queues
- 20+ Year Design Life (assumes 1% traffic growth)
- Best traffic operations at 20-year design life

Cons

- Yield required for traffic on 6% grade
- Some ROW Impacts
- Beyond budget
- Effectiveness reduced by bridge constraint
- First Hybrid Roundabout in Capital region
- Lefts out of Iron Works Road more difficult



Preferred Alternative

Signal vs. Roundabout vs No Build

- Traffic Operations
- Safety
- Roadway Grade 6%
- Cost
- Constructability
- ROW Impacts
- Bicycle & Pedestrian Interests



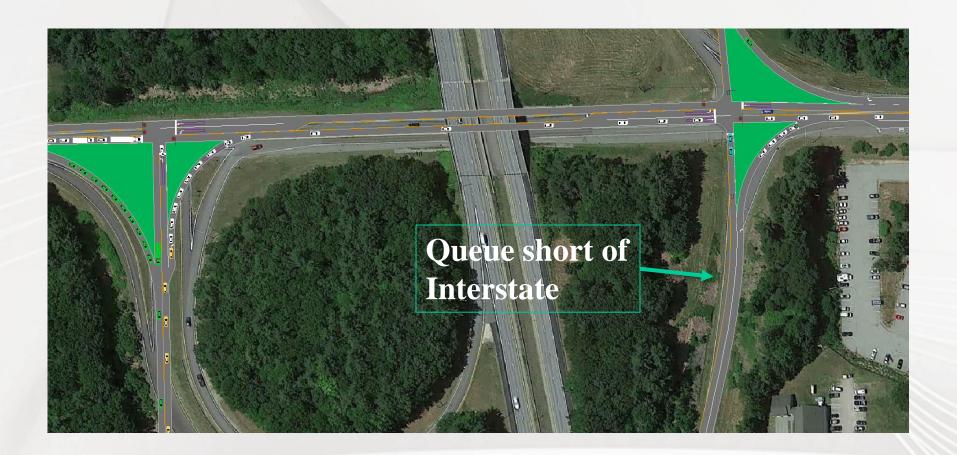


Preferred Alternative





Preferred Alternative





Questions or Comments?

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